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Attorney Docket No.	US010694 (7790/220)
Application Number	10/028,379
Filing Date	DECEMBER 21, 2001
First Named Inventor	DAVID CHRISTIAN
Group Art Unit	2817
Examiner	CHUC TRAN

ENCLOSURES *(check all that apply)*

- ☐ Amendment
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Status Letter
- ☐ Petition for Extension of Time Request (duplic)
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement, PTO-1449, art
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
- ☐ Assignment Papers *(for an Application)*
- ☐ Drawings:
- ☐ After Allowance Communication to Group
- ☐ Petition Routing Slip (PTO/SB/69) and Accompanying Petition
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- ☒ Appeal Brief (2 copies)
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- ☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. 50-1713. A duplicate copy of this sheet is enclosed.
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First Presentation of Multiple Dep. Claim					+$145	—		+ $285=	
					total add'l fee	$ 0		total add'l fee	$

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm *or* Individual name	DARRIN WESLEY HARRIS Registration No. 40,636 CARDINAL LAW GROUP 1603 Orrington Avenue, Suite 2000 Evanston, IL 60201
Signature	Date: November 3, 2003

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IN THE UNITED STATES
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Appl. No.	:	10/028,379
Applicant(s)	:	CHRISTIN ET AL.
Filed	:	December 21, 2001
TC/A.U.	:	2817
Examiner	:	CHUC TRAN
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Title: POWER SAVING SUPPLY COMMUTATION METHOD AND APPARATUS FOR ELECTRONIC CONVERGENCE CIRCUITS

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APPEAL BRIEF

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Mail Stop **Appeal Brief - Patents**
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Dear Sir:

Appellant herewith respectfully presents a Brief on Appeal as follows:

1. REAL PARTY IN INTEREST

The real party in interest is Koninklijke Philips Electronics N.V., a corporation of The Netherlands having an office and a place of business at Groenewoudseweg 1, Eindhoven, Netherlands 5621 BA. Koninklijke Philips Electronics N.V. is the ultimate parent of the assignee of record Philips Electronics North America Corporation, a Delaware corporation having an office and a place of business at 1251 Avenue of the Americas, New York, NY 10020-1104. Philips Electronics North America Corporation intends to further assign this application to Koninklijke Philips Electronics N.V.

2. RELATED APPEALS AND INTERFERENCES

Appellant and the undersigned attorney are not aware of any other appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal.

3. STATUS OF CLAIMS

Claims 1-7, 9-12 and 15-22 are currently pending in the application and are the claims on appeal. See, the Appendix. Claims 1-7, 9-12, 15-17, and 19-22 stand finally rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,961,032 to *Rodriquez-Cavazos* et al. Claim 18 stands finally rejected under 35 U.S.C. §103(a) as being unpatentable over *Rodriquez-Cavazos.*

4. STATUS OF AMENDMENTS

A first reply under 37 C.F.R. §1.112 involving an amendment of original claims 1-12 and 15-18, a cancellation of original claims 13 and 14, and an addition of new claims 19-22 was filed on 03/19/2003 and entered into the present application. A second reply under 37 C.F.R. §1.116 involving remarks supporting an allowance of claims 1-12 and 15-22 over *Rodriquez-Cavazos* was filed on 09/03/2003, but not entered into the application.

5. SUMMARY OF THE INVENTION

FIG. 1 of the present applications illustrates a conversion circuit 100 for use in cathode ray tubes (e.g. television tubes, projection televisions, etc.) is shown. The conversion circuit 100 includes a low voltage power supply 101, and a high voltage power supply 102. The low voltage power supply 101 and high voltage power supply 102 are connected to a switching network 103. The switching network 103 is connected to a output stage 104, which is ultimately connected to deflection yokes 105 disposed about the cathode ray tube (not shown). The deflection yokes 105 include standard deflection yokes and convergence yokes. A voltage feedback circuit 106 provides the voltage sense and magnitude detection to control the switching network 103. See, *U.S. Patent Application Serial No. 10/028,379* at paragraph [0075].

In one embodiment shown in FIG. 2, a positive polarity convergence circuit 200 includes a low positive voltage rail on node 202 and a high positive voltage rail 201, and in one embodiment shown in FIG. 3, a negative polarity convergence circuit

300 includes a low negative voltage rail on node 202 and a high negative voltage rail 301. See, *U.S. Patent Application Serial No. 10/028,379* at paragraph [0115].

The positive polarity and negative polarity convergence circuits 200 and 300, respectively, may be used in accordance with the exemplary embodiment shown in Fig. 1 to achieve what is often referred to as a boost-on-demand (BOD) circuit. First and second transistors 203 and 303, and diodes 204 and 304 illustratively comprise the power switching elements of switching network 103. The first and second transistors 203 and 303 are illustratively field effect transistors (FET's) with low on-resistance (R_{on}), and do not require large heat sinks, as a result. The first transistor 203 illustratively has an on-resistance (R_{on}) of less than 0.1Ω with a current capacity of 16A. Second transistor 303 illustratively has a R_{on} of less than 0.175Ω with a current capacity of 12A. Both transistors are switched relative to respective high positive voltage rail 201 and high negative voltage rail 301. To this end, for the exemplary embodiments illustrated in FIGS. 2 and 3, voltage rails 201 and 301 are coupled to a gate terminal (i.e., a control input) of transistor 203 and 303, respectively. When transistor 203 is not turned on, diode 204 supplies power from the low positive voltage rail 202 to the output stage 104 of FIG. 1. When transistor 203 is turned on, power to the output stage 104 is supplied from the high positive voltage rail 201, and diode 204 is reversed biased and blocks the connection to the low positive voltage rail. Similarly, 2hen transistor 303 is not turned on, diode 304 supplies power from the low negative voltage rail 302 to the output stage 104 of FIG. 1. When transistor 303 is turned on, power to the output stage 304 is supplied from the high negative voltage rail 301, and diode 304 is reversed biased and blocks the

connection to the low negative voltage rail. See, *U.S. Patent Application Serial No. 10/028,379* at paragraph [0120].

6. ISSUE

Whether claims 1, 12, 19, 20 and 22 are patentable over *Rodriquez-Cavazos*.

7. GROUPING OF CLAIMS

The claims should be considered in four (4) separate claim groups:

Claim Group I includes independent claim 1, and claims 1-7 and 9-11 depending from claim 1.

Claim Group II includes independent claim 12, and claims 15-17 depending from independent claim 11.

Claim Group III includes independent claim 19 and claim 21 depending from independent claim 19.

Claim Group IV includes claims 20 and 22, both of which depend from independent claim 19.

8. ARGUMENTS

Anticipation. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868

F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The Applicant respectfully traverses the rejections of claims 1-7, 9-12 and 15-22, because *Rodriquez-Cavazos* fails to show in complete detail the following limitations of claims 1, 12, 19, 20 and 22:

1. "a low-power dissipating switching network which switches between said low voltage power supply and said high voltage power supply relative to said high voltage power supply" as recited in independent claim 1;

2. "wherein said positive and negative polarity convergence circuits further include a switching network which operates relative to said high positive voltage rail and said high negative voltage rail" as recited in independent claim 12;

3. "a low-power dissipating switching network which switches between said low voltage power supply and said high voltage power supply relative to said high voltage power supply" as recited in independent claim 19;

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4. "wherein said switching network includes a transistor having a control input coupled to said high voltage rail" as recited in dependent claims 20 and 22.

Rodriquez-Cavazos. As to the traversal, *Rodriquez-Cavazos* discloses a switching network employing (1) a pair of emitter-follower voltage regulators 11 and 13 in a first embodiment illustrated in FIG. 1 of *Rodriquez-Cavazos*, (2) emitter-follow voltage regulator 11 in a second embodiment illustrated in FIG. 2 of *Rodriquez-Cavazos*, (3) a pair of emitter-follower voltage regulators Q3 and Q6 in a third embodiment illustrated in FIG. 3 of *Rodriquez-Cavazos*, (4) emitter-follower voltage regulator Q3 in a fourth embodiment illustrated in FIG. 4 of *Rodriquez-Cavazos*, and (5) emitter-follower voltage regulator Q6 in a fifth embodiment illustrated in FIG. 4 of *Rodriquez-Cavazos*. In operation, *Rodriquez-Cavazos* teaches a cutoff mode for the voltage regulators when connecting an output stage to a low voltage rail (e.g., a cutoff mode of transistor Q3 when connecting $+V_L$ to V_{OUT} as illustrated in FIGS. 3 and 4), and an active mode for the voltage regulators when connecting an output stage to a high voltage rail (e.g., an active of transistor Q3 when connecting $+V_H$ to V_{OUT} as illustrated in FIGS. 3 and 4). See, *Rodriquez-Cavazos* at column 7, lines 53 to column 8, line 55.

It is well known in the art that (1) an emitter-follower implements a reverse bias of a collector-base junction and a reverse bias of an emitter-base junction when operating in a cutoff mode, and (2) an emitter-follower implements a reverse bias of a collector-base junction and a forward bias of an emitter-base junction when

operating in an active mode. It is also well known that a switching between the cutoff mode (reverse bias of an emitter-base junction) and the active mode (forward bias of an emitter-base junction) is relative exclusively to the base voltage and the emitter voltage.

Rodriquez-Cavazos teaches (1) a connection of a high positive voltage rail $+V_{HIGH}$ to a collector of voltage regulator 11 as illustrated in FIGS. 1 and 2, (2) a connection of a high negative voltage rail $-V_{HIGH}$ to a collector of voltage regulator 13 as illustrated in FIG. 1, (3) a connection of a high positive voltage rail +V to a collector of voltage regulator Q3 as illustrated in FIGS. 3 and 4, and (4) a connection of a high negative voltage rail $-V_H$ to a collector of voltage regulator Q6 as illustrated in FIGS. 3 and 5. Because the collector-base junction remains reverse biased during any switch between the cutoff mode and the active mode, *Rodriquez-Cavazos* fails to teach a switching between the cutoff mode (reverse bias of an emitter-base junction) and the active mode (forward bias of an emitter-base junction) relative to the collector voltage (i.e., the high positive voltage rail for voltage regulators 11 and Q3, and the high negative voltage rail for voltage regulators 13 and Q6).

It is further well known that, for a saturation mode, an emitter-follower implements a forward bias of a collector-base junction and a forward bias of an emitter-base junction. Thus, if *Rodriquez-Cavazos* taught a switching between the cutoff mode and the saturation mode, then *Rodriquez-Cavazos* could be interpreted as teaching an operation of the switching network relative to the collector voltage of voltage regulators 11, 13, Q3 and Q6. However, *Rodriquez-Cavazos* teaches away from using voltage regulators 11, 13, Q3 and Q6 as a switch (i.e., switching between

the cutoff mode and the saturation mode), and therefore teaches away from an operation of the switching network relative to the collector voltage of voltage regulators 11, 13, Q3 and Q6. See, *Rodriquez-Cavazos* at column 8, lines 4-31.

Claim Group I. *Rodriquez-Cavazos* unequivocally fails to disclose and teaches away from "a low-power dissipating switching network which switches between said low voltage power supply and said high voltage power supply relative to said high voltage power supply" as recited in independent claim 1. Withdrawal of the rejection of independent claim 1 under 35 U.S.C. §102(b) over *Rodriquez-Cavazos* is therefore respectfully requested.

Claims 2-7 and 9-11 depend from independent claim 1. Therefore, dependent claims 2-7 and 9-11 include all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Applicant that dependent claims 2-7 and 9-11 are allowable over *Rodriquez-Cavazos* for at least the same reason as set forth herein with respect to independent claim 1 being allowable over *Rodriquez-Cavazos*. Withdrawal of the rejection of dependent claims 2-7 and 9-11 under 35 U.S.C. §102(b) over *Rodriquez-Cavazos* is therefore respectfully requested.

Claim Group II. *Rodriquez-Cavazos* unequivocally fails to disclose and teaches away from "wherein said positive and negative polarity convergence circuits further include a switching network which operates relative to said high positive voltage rail and said high negative voltage rail" as recited in independent claim 12. Withdrawal of the rejection of independent claim 12 under 35 U.S.C. §102(b) over

Rodriquez-Cavazos is therefore respectfully requested.

Claims 15-17 depend from independent claim 12. Therefore, dependent claims 15-17 include all of the elements and limitations of independent claim 12. It is therefore respectfully submitted by the Applicant that dependent claims 15-17 are allowable over *Rodriquez-Cavazos* for at least the same reason as set forth herein with respect to independent claim 12 being allowable over *Rodriquez-Cavazos.* Withdrawal of the rejection of dependent claims 15-17 under 35 U.S.C. §102(b) over *Rodriquez-Cavazos* is therefore respectfully requested.

Claim 18 depends from independent claim 12. Therefore, dependent claim 18 includes all of the elements and limitations of independent claim 12. It is therefore respectfully submitted by the Applicant that dependent claim 18 is allowable over *Rodriquez-Cavazos* for at least the same reason as set forth herein with respect to independent claim 12 being allowable over *Rodriquez-Cavazos*. Withdrawal of the rejection of dependent claim 18 under 35 U.S.C. §103(a) over *Rodriquez-Cavazos* is therefore respectfully requested.

<u>Claim Group III</u>. *Rodriquez-Cavazos* unequivocally fails to disclose and teaches away from "a switching network switching the connection of said output stage to said polarity convergence circuit between said high voltage rail and said low voltage rail <u>relative to said high voltage rail</u>" as recited in independent claim 19. Withdrawal of the rejection of independent claim 19 under 35 U.S.C. §102(b) over *Rodriquez-Cavazos* is therefore respectfully requested.

Claim 21 depends from independent claim 19. Therefore, dependent claim 21 includes all of the elements and limitations of independent claim 19. It is therefore respectfully submitted by the Applicant that dependent claim 21 is allowable over *Rodriquez-Cavazos* for at least the same reason as set forth herein with respect to independent claim 19 being allowable over *Rodriquez-Cavazos.* Withdrawal of the rejection of dependent claim 21 under 35 U.S.C. §102(b) over *Rodriquez-Cavazos* is therefore respectfully requested.

Claim Group IV. *Rodriquez-Cavazos* unequivocally fails to disclose and teaches away from "wherein said switching network includes a transistor having a control input coupled to said high voltage rail" as recited in dependent claims 20 and 22. Withdrawal of the rejection of dependent claims 20 and 22 under 35 U.S.C. §102(b) over *Rodriquez-Cavazos* is therefore respectfully requested.

Dated: **November 3, 2003**

Respectfully submitted,
CHRISTIAN ET AL

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APPENDIX

1. A cathode ray tube convergence circuit, comprising:

a low voltage power supply;

a high voltage power supply; and

a low-power dissipating switching network which switches between said low voltage power supply and said high voltage power supply relative to said high voltage power supply.

2. The cathode ray tube convergence circuit as recited in claim 1, wherein a power dissipation of said low-power switching network is in the range of approximately 25 Watts to approximately 50 Watts.

3. The cathode ray tube convergence circuit as recited in claim 1, wherein said low voltage power supply operates between approximately 12V and approximately 24V.

4. The cathode ray tube convergence circuit as recited in claim 1, further comprising a divided rail circuit.

5. The cathode ray tube convergence circuit as recited in claim 1, wherein said low voltage power supply drives a standard deflection yoke of a cathode ray tube.

6. The cathode ray tube convergence circuit as recited in claim 1, wherein said

high-voltage power supply drives a convergence yoke during a retrace interval of a cathode ray tube.

7. The cathode ray tube convergence circuit as recited in claim 1, further comprising:

an output stage receiving a first power from one of said power supplies at a particular time, and a second power from the other of said power supplies does not traverse said switch network at said particular time.

9. The cathode ray tube convergence circuit as recited in claim 1, wherein said switching network includes transistors and diodes.

10. The cathode ray tube convergence circuit as recited in claim 1, wherein the convergence circuit drives convergence yokes of the cathode ray tube.

11. The cathode ray tube convergence circuit as recited in claim 1, further comprising:

a voltage feedback circuit to initiate said switching between said low voltage power supply and said high voltage power supply.

12. A cathode ray tube convergence circuit, comprising:

a positive polarity convergence circuit including a high positive voltage rail and a low positive voltage rail;

a negative polarity convergence circuit including a high negative voltage rail and a low negative voltage rail; and

wherein said positive and negative polarity convergence circuits further include a switching network which operates relative to said high positive voltage rail and said high negative voltage rail.

15. The cathode ray tube convergence circuit as recited in claim 12, wherein said positive polarity convergence circuit outputs high and low positive voltages to deflection yokes of a cathode ray tube.

16. The cathode ray tube convergence circuit as recited in claim 15, wherein said negative polarity convergence circuit outputs high and low negative voltages to deflection yokes of a cathode ray tube.

17. The cathode ray tube convergence circuit as recited in claim 12, wherein said positive polarity convergence circuit and said negative polarity convergence circuit constitute a boost-on-demand circuit which outputs a high voltage to drive at least one convergence yoke for a relatively short time duration so that output power is conserved.

18. The cathode ray tube convergence circuit as recited in claim 17, wherein said boost-on-demand circuit outputs a low voltage for approximately 75% of an

operating time of the cathode ray tube.

19. A cathode ray tube convergence circuit, comprising:

a polarity convergence circuit including a high voltage rail and a low voltage rail;

an output stage connected to said polarity convergence circuit; and

a switching network switching the connection of said output stage to said polarity convergence circuit between said high voltage rail and said low voltage rail relative to said high voltage rail.

20. The cathode ray tube convergence circuit as recited in claim 19, wherein said switching network includes a transistor having a control input coupled to said high voltage rail.

21. The cathode ray tube convergence circuit as recited in claim 19, further comprising:

a voltage feedback controlling said switching network in switching the connection of said output stage to said first polarity convergence circuit between said high voltage rail and said low voltage rail relative to said high voltage rail.